

fiber; Claims 34-43, drawn to a process for making a composition for conversion to lyocell fiber, which are the claims now pending in the present application; and Claims 44-51, drawn to a process for making a lyocell fiber, which are the claims that issued in the '788 patent. Under 35 U.S.C. § 121, a patent issuing on an application with respect to which a requirement for restriction under this section has been made, or on an application filed as a result of such a requirement, shall not be used as a reference either in the Patent and Trademark Office or in the courts against a divisional application or against the original application or any patent issued on either of them if the divisional application is filed before the issuance of the patent on the other application. *See also*, M.P.E.P. § 804.01. Accordingly, withdrawal of the double-patenting rejection is respectfully requested.

The Rejection of Claims 1-11 Under 35 U.S.C. § 103(a)

Claims 1-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gannon et al. (U.S. Patent No. 6,042,769), in view of Samuelson et al. (U.S. Patent No. 5,985,097), with or without Luo et al. (U.S. Patent No. 6,210,801). Applicants respectfully traverse the rejection.

The Examiner states that "Gannon et al. fairly disclose a process for making lyocell fibers comprising the steps of: (a) contacting an alkaline pulp comprising cellulose and hemicellulose under alkaline condition with an amount of oxidant (hydrogen peroxide or ozone) sufficient to reduce the average degree of polymerization of the cellulose to the range of from about 200 to about 1100 and (b) forming the fibers from the pulp treated in accordance with step (a)". Applicants disagree. Gannon et al. do not disclose contacting an alkaline pulp comprising cellulose and at least 7% hemicellulose under alkaline conditions with an amount of oxidant sufficient to reduce the average degree of polymerization of the cellulose to within the range of

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from about 200 to about 1100, without substantially reducing the hemicellulose content of the pulp or substantially increasing the copper numbers.

The Examiner states that "Gannon et al. teaches the claimed invention except for the limitation of of [*sic*] without substantially reducing the hemicellulose content of the pulp or substantially increasing the copper number". The Examiner states that "Samuelson et al. teaches that the catalysation of the depolymerization of cellulose and hemicellulose during peroxide bleaching can be controlled by monitoring and controlling the ratio of transition metals and Mg in the pulp". The Examiner states "it would have been obvious to prevent the degradation of the hemicellulose and cellulose in the cellulosic material of Gannon et al. by adding the proper amount of Mg as taught by Samuelson et al."

An obviousness rejection requires that there be a suggestion or motivation either in the references or in the knowledge that is generally available to modify a reference or to combine references. In addition, there must be a reasonable expectation of success and all the elements of the claims must be taught or suggested by the prior art. The motivation or suggestion cannot be taken from the applicants' disclosure. The issue whether elements are taught or suggested by the prior art will be addressed first.

In relevant part, Claim 1 recites "contacting an alkaline **pulp** comprising cellulose and at least about **7% hemicellulose** under alkaline conditions with an amount of an oxidant sufficient to reduce the average degree of polymerization of the cellulose to within the range of from about 200 to about 1100, without substantially reducing the hemicellulose content of the **pulp** or substantially increasing the copper number." (Emphasis added.)

In direct contrast, Gannon describes a **fiber** treatment that reduces the **fiber's** degree of polymerization by about 200 units. See the Abstract. In addition, see Col. 2, lines 3-5, 14-15, 17-19, 45-48; Col. 3, lines 28-30, 45-48; and Col. 4, lines 7-11. The many references to the

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treatment of a fiber, as opposed to a pulp, clearly indicate that the Gannon et al. reference does not teach or suggest reducing the D.P. of cellulose in a **pulp**, as claimed. Furthermore, Gannon et al. are silent on the amount of hemicellulose. For at least these reasons, Claims 1-11 are not unpatentable in view of Gannon et al., either alone or in combination with Samuelson and Luo.

The Office Action lacks the requisite suggestion or motivation to combine and modify references. The Examiner contends that "it would have been obvious to prevent the degradation of the hemicellulose and cellulose in the cellulosic material of Gannon et al. by adding the proper amount of magnesium as taught by Samuelson et al." This statement of the Examiner addresses the issue of whether a person can modify Gannon, and not whether the teachings of the references suggest or motivate one to do so. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680 16 USPQ2d 1430 (Fed. Cir. 1990); M.P.E.P. §2143.01. Samuelson et al. describe that magnesium compounds are widely used to suppress the depolymerization of cellulose. Col. 1, lines 41-42. However, Claim 1 recites that the average degree of polymerization of the cellulose is reduced. If the Mg is added to the pulp as the Examiner contends, the effect would be to prevent degradation of cellulose, which is the opposite of what the claims recite. There is also the fact that Gannon et al. describe increased pulp viscosity (Col. 4, line 12), whereas reducing the degree of polymerization of cellulose in pulp would reduce viscosity. When a reference directly teaches against the process that is recited by the claims, the claims are not obvious in view thereof because neither a suggestion nor motivation exists to combine or modify.

The Examiner contends that if the degradation of cellulose is prevented, the copper number would not be substantially increased. This is presumed to have come from the

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Examiner's statement that "the copper number is directly related to cellulose degradation." Applicants wish to correct what appears to be a misunderstanding on the part of the Examiner. The passage taken from applicants' specification (p. 16, lines 8-20) is in the context of solvent degradation of cellulose during and after dissolution of the treated pulp to form a dope, for example, such as with NMMO. Therefore, there is no teaching from the references or otherwise to reduce the degree of polymerization without increasing the copper number.

Accordingly, there being no suggestion or motivation and the lack of elements, the claims are not obvious in view of Gannon et al., either alone or in combination with Samuelson et al. and Luo et al.

#### The Rejection of Claims 1-11 Under 35 U.S.C. § 112, Second Paragraph

Claims 1-11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicants regard as the invention. Applicants respectfully disagree.

The Examiner states that "the term 'without substantially increasing of the copper number,' when read in view of the specification includes increases up to 100%." The Examiner contends that a doubling of the copper number is a substantial increase in copper number, and therefore the term is indefinite. The Examiner is wishing to impose his subjective opinion of what "substantial" means. The Examiner's opinion is contrary to the express definition provided in the specification. Applicants are allowed to define terms in the specification. Thus, the term is not indefinite because the specification gives clear indication of what is meant by the claims.

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### CONCLUSION

In view of the foregoing remarks, applicants submit that Claims 1-11 are allowable. If the Examiner has any further questions that may be expeditiously resolved with a telephone call, the Examiner is invited to contact the applicants' attorney at the number provided below.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

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